

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



Rec'd PCT/PTO 01 APR 2005



(43) International Publication Date
22 April 2004 (22.04.2004)

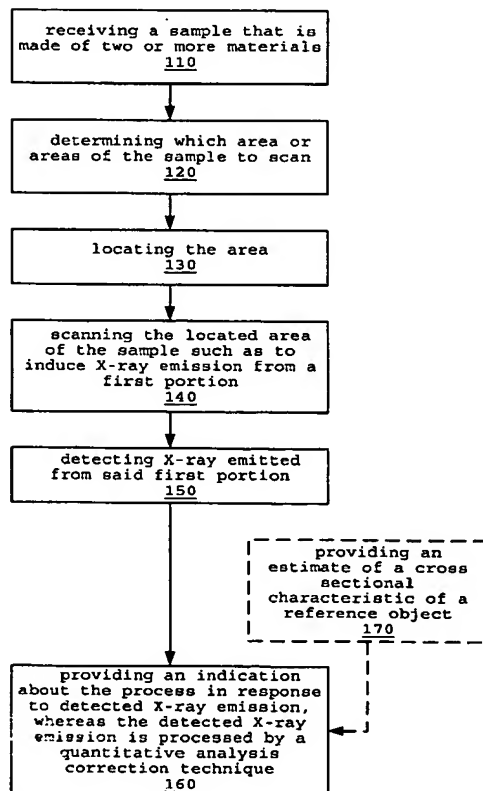
PCT

(10) International Publication Number
WO 2004/034043 A2

- (51) International Patent Classification⁷: G01N 23/00
- (21) International Application Number: PCT/US2003/031998
- (22) International Filing Date: 8 October 2003 (08.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/417,273 8 October 2002 (08.10.2002) US
- (71) Applicant (for all designated States except US, ZW): APPLIED MATERIALS ISRAEL, LTD. [IL/IL]; 8 Oppenheimer Street, 76236 Rehovot (IL).
- (71) Applicant (for ZW only): APPLIED MATERIALS, INC. [US/US]; P.O. Box 450A, Santa Clara, CA 95052 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): SHEMESH, Dror [IL/IL]; Ben Zvi 17, 49375 Petah Tikva (IL).
- (74) Agent: FAHMI, Tarek, N.; Blakely, Sokoloff, Taylor & Zafman LLP, 12400 Wilshire Boulevard, 7th Floor, Los Angeles, CA 90025 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR PROCESS MONITORING



(57) Abstract: Systems and methods for process monitoring based upon X-ray emission induced by a beam of charged particles such as electrons or ions include a system and method for process monitoring that analyze a cavity before being filled and then analyze emitted X-rays from the cavity after the cavity has been filled with a conductive material. Also included are system and methods for process monitoring that apply a quantitative analysis correction technique on detected X-ray emissions.

10/530178
Rec'd PCT/PTO 01 APR 2005

WO 2004/034043 A2



ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *without international search report and to be republished upon receipt of that report*